

## CLAIMS

1-19. (Cancelled)

20. (New) A system for decoding an audio signal, said system comprising:  
one or more audio decoding circuits for performing one or more functions on a frame of encoded audio data, wherein the one or more audio decoding functions comprises prediction decoding;

a memory for storing results of the one or more audio decoding functions comprising prediction decoding on the frame of encoded data;

a bitstream demultiplexer for bitstream demultiplexing the frame of encoded audio data; and

wherein the memory stores the results of bitstream demultiplexing the encoded audio data over at least a portion of the results of the one or more audio decoding functions comprising prediction decoding.

21. (New) The method of claim 20, further comprising:

a Huffman decoder for Huffman decoding the frame of encoded audio data; and

wherein the memory stores results of Huffman decoding the encoded audio data in the memory over at least another portion of the results of the one or more audio decoding functions comprising decoding.

22. (New) The system of claim 20, wherein the one or more audio decoding circuits further comprises a prediction decoder for performing the prediction decoding function.

23. (New) The system of claim 22, wherein the one or more audio decoding circuits further comprises an intensity coupling circuit.

24. (New) The system of claim 22, wherein the one or more audio decoding circuits further comprise a filter bank.

25. (New) The system of claim 22, wherein the one or more circuits further comprises a temporal noise shaper.

26. (New) A system for decoding an audio signal, said system comprising:  
a first audio decoding circuit for performing a first audio function on a frame of encoded audio data, wherein the first audio decoding circuit is selected from a group consisting of an inverse quantizer for inverse quantizing the frame of encoded audio data, a bitstream demultiplexer for demultiplexing the frame of encoded audio data, and a filter bank for filtering the frame of encoded audio data;  
a memory for storing outputs of the first audio decoding circuit;  
a second audio decoding circuit for performing a second audio function on a frame of encoded audio data, wherein the second audio decoding circuit is selected from a group consisting of a bitstream demultiplexer for demultiplexing the frame of encoded audio data, a filter bank for filtering the frame of encoded audio data, and an intensity coupler for intensity coupling the frame of encoded audio data; and  
wherein the memory stores the outputs of the second audio decoding circuit over at least a portion of the results of the first audio decoding circuit.

27. (New) The system of claim 26, wherein the first audio decoding circuit comprises a filter bank for filtering the frame of encoded audio data and wherein the second audio decoding circuit comprises a bitstream demultiplexer, and further comprising:

an intensity coupler for intensity coupling the frame of encoded audio data; and

wherein the memory stores the output of the intensity coupler over at least a portion of the results of the second audio decoding circuit.

28. (New) A method for decoding an audio signal, said method comprising:  
performing one or more functions on a frame of encoded audio data,  
wherein the one or more audio decoding functions comprises prediction decoding;  
storing results of the one or more audio decoding functions comprising  
prediction decoding on the frame of encoded data;  
bitstream demultiplexing the frame of encoded audio data; and  
storing the results of bitstream demultiplexing the encoded audio data over  
at least a portion of the results of the one or more audio decoding functions comprising  
prediction decoding.

29. (New) The method of claim 28, further comprising:  
Huffman decoding the frame of encoded audio data; and  
storing results of Huffman decoding the encoded audio data in the  
memory over at least another portion of the results of the one or more audio decoding  
functions comprising decoding.

30. (New) The system of claim 28, wherein the one or more functions further  
comprises intensity coupling the encoded audio data.

31. (New) The system of claim 28, wherein the one or more functions further  
comprise a filter bank function.

32. (New) The system of claim 28, wherein the one or more functions further  
comprises a temporal noise shaping.